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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/694,816	10/29/2003	Karl-Heinz Maus	024943-056	6775
21839	7590	09/19/2006		
BUCHANAN, INGERSOLL & ROONEY PC POST OFFICE BOX 1404 ALEXANDRIA, VA 22313-1404			EXAMINER ALEJANDRO, RAYMOND	
			ART UNIT 1745	PAPER NUMBER

DATE MAILED: 09/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/694,816

Applicant(s)

MAUS ET AL.

Examiner

Raymond Alejandro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,6-11,13,14 and 16-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,6-11,13,14 and 16-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

This paper is responsive to the amendment filed on 08/30/06. Applicant has overcome the objections, the 35 USC 112 rejections and two of the 35 USC 102 rejections, specifically, the rejections over the WO'995 and the EP'086. Refer to the abovementioned amendment for additional information concerning applicant's rebuttal arguments and remarks. Therefore, the present claims are finally rejected over the remaining ground of rejection as well as over a newly discovered reference as set forth hereinbelow and for the reasons of record:

Claim Disposition

1. Claims 5, 12 and 15 have been cancelled.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4, 6-11, 13-14, 16-18 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by the Japanese publication JP 2001-338673 (hereinafter the JP'673).

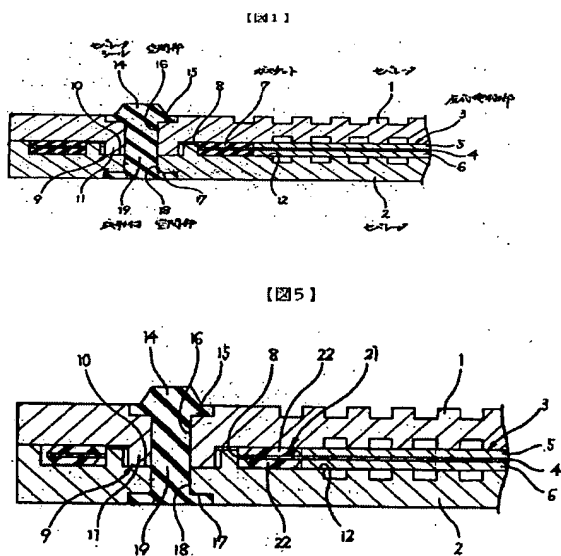
The present claims are directed to a fuel cell arrangement wherein the disclosed inventive concept comprises the specific seal element.

As to claims 1 and 6:

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The JP'673 discloses two or more separators 1, 2 being unified in a stack fashion by injection molding of a molding material 19 which consists of a rubber, a liquid rubber, or a thermoplastic elastomer (*all of the are polymeric materials*) (ABSTRACT). **Figure 7** illustrates the final fuel cell arrangement composed of multiple individual components being stacked together.

Figures 1 and 5 below illustrate the specific fuel cell arrangement or configuration including plates 1 and 2 and a molding material 19 injected onto the plates to seal them so as to form a joined structure.

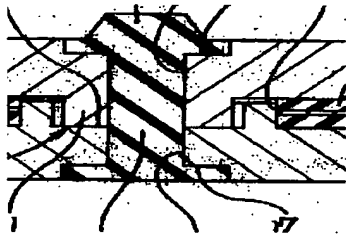


As illustrated in **Figures 1 and 5** above, each plate 1, 2 has an opening or aperture and the seal element (reference numeral 19) extend therethrough (See also **enlarged portion of Figure 1** below). *In this instant, the cavity having the seal may be either the upper portion of plate 1, or the lower portion of plate 2, or the interface portion between plates 1 and 2.*

As to claims 2-4, 9-11 and 14:

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Molding material 19 (the seal element) is disposed on the main surfaces of the stack and the seal element encompasses end faces of the plates (See **Figures 1 and 5**). Plates 1 and 2 are placed immediately adjacent one another and there is an empty space therebetween (See **enlarged portion of Figure 1** below).



As to claims 14:

As illustrated in **Figures 1 and 5** above, each plate 1, 2 has an opening or aperture and the seal element (reference numeral 19) extend therethrough (See also **enlarged portion of Figure 1** below). *In this instant, the cavity having the seal may be either the upper portion of plate 1, or the lower portion of plate 2, or the interface portion between plates 1 and 2.*

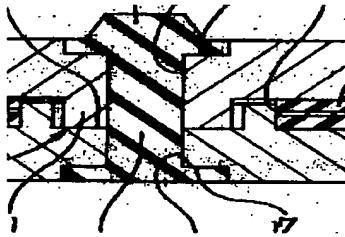
As to claim 7:

The JP'673 discloses using a molding material 19 which consists of a rubber, a liquid rubber, or a thermoplastic elastomer (*all of the are polymeric materials*) (ABSTRACT). *It is noted that these polymeric materials exhibit adhesive properties (one of the polymeric material more adhesive than the other).*

As to claims 8 and 13:

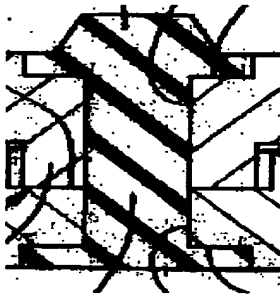
Enlarged portion of Figure 1 below depicts the interlocking configuration between the molding material 19 and the plates, as well as between the plates. *The space where the molding material 19 is specifically disposed corresponds to respective plates opening overlapping each other.*

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As to claims 16-18:

Further enlarged portion of Figure 1 below shows a molding material 19 being progressively narrowed toward the upper end (tapered structure) and having flat surfaces at either side thereof.



As to claim 20:

The JP'673 discloses two or more separators 1, 2 being unified in a stack fashion by injection molding of a molding material 19 which consists of a rubber, a liquid rubber, or a thermoplastic elastomer (*all of the are polymeric materials*) (ABSTRACT). *Thus, the process of producing the module for the fuel cell arrangement is inherently disclosed by the JP'673.*

Consequently, the present claims are anticipated.

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4. (*At least*) Claims 1, 6 and 20 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by the publication WO 99/04446 (heretofore the WO'446).

As to claims 1, 6 and 20:

Figures 4B-C of the WO'446 depict a seal for membrane electrode assembly 100 in an electrochemical fuel cell and method of making same (TITLE) including separator plates 200 (Page 13, lines 7-20) including openings (recessed groove 265) and having injected therein an integral seal 110 to join the plates together at a lateral side thereof (Page 13, lines 7-20 & See Figures 4B-C). The integral seal for a plurality of sealing regions of the porous electrode layers 140 could be injection molded (Page 11, lines 5-10). The sealant material is a polymeric material (Page 10, lines 19-23).

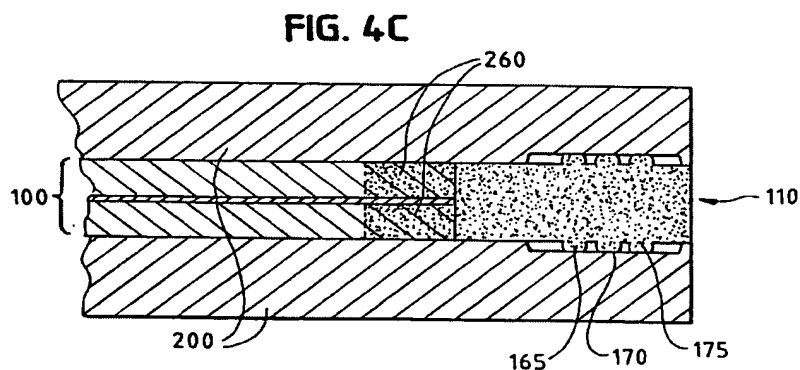
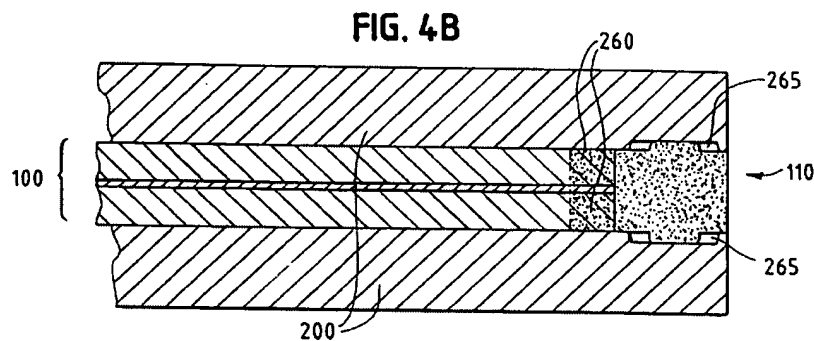
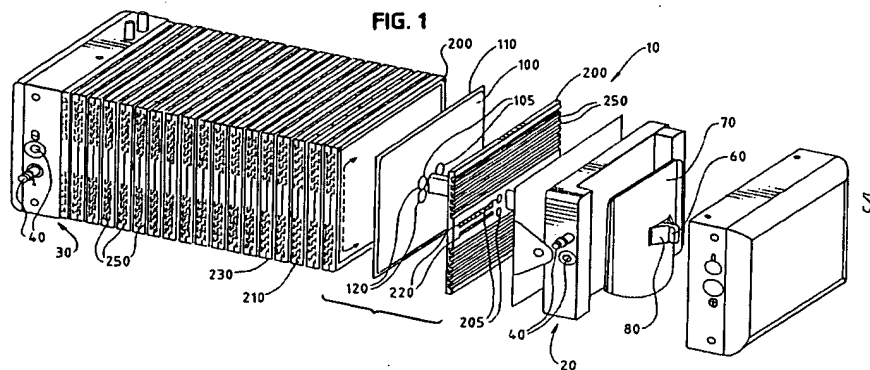
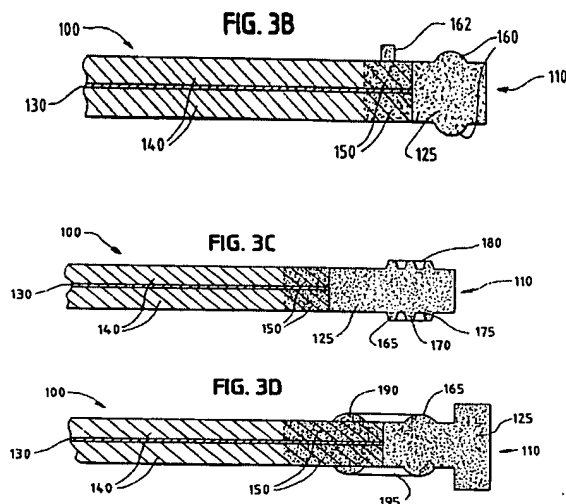


Figure 1 illustrates multiple individual components stacked together to form a fuel cell module or arrangement.



As to claims 16-19:

The WO'446 shows in **Figures 3B-D** below seal elements comprising tapered structures and flat surfaces. Specifically, **Figure 3C** does show the flat surface being separated from the tapering surface by a recess.



As a result, the present claims are anticipated.

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5. (*At least*) Claims 1 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by applicant's admission of prior art (herein called the AAPA) (*refer to applicant's specification at paragraph 0005*).

In paragraph 0005 of applicant's specification, the AAPA discloses a seal arrangement especially for bipolar plates with interposed ion exchange membrane units in fuel cells wherein seal elements of the polymer material are injected into the recesses of the bipolar plates and with the pertinent bipolar plate, form an integral unit (Applicants' specification at paragraph 0005).

Accordingly, the present claims are anticipated.

Claim Rejections - 35 USC § 103

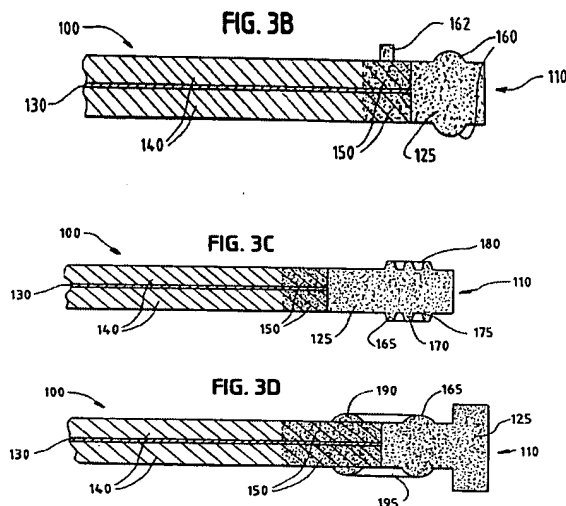
6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over: a) Japanese publication JP 2001-338673 (hereinafter the JP'673); and/or b) applicant's admission of prior art (herein called the AAPA) (*refer to applicant's specification at paragraph 0005*) as applied to claims 6 or 18 above, and further in view of the publication WO 99/04446 (herein called the WO'446).

The JP'673 and/or the AAPA are applied, argued and incorporated herein for the reasons expressed above. However, none of the preceding references expressly disclose the specific seal having recesses.

The WO'446 shows in **Figures 3B-D** below seal elements comprising tapered structures and flat surfaces. Specifically, **Figure 3C** does show the flat surface being separated from the tapering surface by a recess.



In view of the above, it would have been obvious to a POSITA at the time the invention was made to use the specific seal having recesses of the WO'446 in the fuel cell arrangement of the JP'673 and/or the AAPA because the WO'446 discloses that seals having such a specific configuration provide compartmentalized seals that furnish improved protection against fluid leaks in a fuel cell assembly. Thus, it does provide enhanced leaking protection.

Response to Arguments

8. All of the arguments advanced by the applicant in the amendment dated 08/30/06 have been thoroughly considered but they are unpersuasive.

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9. Firstly, applicant has stated that claims 1-20 are currently pending (See page 8 at lines 9-13) . However, it is noted that claims 5, 12 and 15 have been voluntarily cancelled by the applicant. Applicant is requested to clarify whether or not these claims have been cancelled.

10. Secondly, applicant has ignored and has not addressed the rejection based upon Applicant's Admission of Prior Art under Section 102 as set forth in the prior office action, item 12. Applicant is requested to address such rejection.

11. Thirdly, since the grounds of rejection based on the WO'995 and the EP'086 have been withdrawn by the examiner, it is unnecessary to address any argument provided by the applicant concerning these references.

12. Next, with respect to the JP'673, applicant takes the position that the foregoing reference *"does not disclose an electrode comprised of two plates connected by a sealing element as recited in Claims 1 and 6. Rather, this document discloses several electrodes connected by a sealing element, but the individual electrodes are not composed of two plates"* because *"each of the separators is one piece and is thus not composed of two plates as claimed"*. In this respect, applicant appears to be unaware of the difference between the transitional terms *"comprised"* (as presently claimed) and *"composed"* (as presently argued). The former being open-ended language while the latter being close-ended language. See ***MPEP 2111.03 Transitional Phrases***. Certainly, applicant's claimed invention does not exclude unspecified elements as apparently advanced by the applicant. Each of applicant's independent claims 1, 6 and 20 recites the transitional term *"comprising"* which is open terminology, not closed terminology.

13. Even assuming arguendo that applicant did not intend to invoke closed-terminology as part of his arguments, the examiner strenuously disagrees with applicant's assertion that *"each of*

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the separators (separators 1, 2) is one piece". In view of Figure 7 of the JP'673, which illustrates stacking together multiple pair of separators each pair forming a single unit, the examiner contends that separators 1, 2 represent a unique combination of two stacked plates, paired together, to constitute a single-individual fuel cell component as instantly claimed and disclosed by the applicant. In other words, separators 1, 2 of the JP'673 constitute an individual component *per se* in the same manner that applicant's individual component is comprised of two stacked plates. Thus, the prior art's combined separator plates are a structural equivalent of the corresponding stacked plates claimed in the instant invention.

Conclusion

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action (See item 4 above). Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (571) 272-1282.

The examiner can normally be reached on Monday-Thursday (8:00 am - 6:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Raymond Alejandro
Primary Examiner
Art Unit 1745


RAYMOND ALEJANDRO
PRIMARY EXAMINER